



AMERICAN KENNEL CLUB
**CANINE HEALTH
FOUNDATION**
PREVENT TREAT & CURE

GRANT PROGRESS REPORT REVIEW

Grant: 01312: *Association mapping study of Legg-Calve-Perthes Disease in the West Highland White Terrier, Yorkshire Terrier, and Cairn Terriers*

Principal Investigator: Dr. Keith E. Murphy, PhD

Research Institution: Clemson University

Grant Amount: \$78,688.00

Start Date: 1/1/2010 **End Date:** 12/31/2011

Progress Report: 12 month

Report Due: 12/31/2010 **Report Received:** 1/18/2011

Recommended for Approval: Approved

(Content of this report is not confidential. A grant sponsor's CHF Health Liaison may request the confidential scientific report submitted by the investigator by contacting the CHF office. The below Report to Grant Sponsors from Investigator can be used in communications with your club members.)

Original Project Description:

Background: Legg-Calve-Perthes Disease (LCPD) is a debilitating developmental disease that affects small breeds of dog, particularly terrier breeds. The only outward indications of this condition are pain, lameness, and muscle atrophy of the hip joint. These signs are not exclusive to LCPD, and are often attributed to minor trauma during the early stages of disease. LCPD is primarily diagnosed by radiographic changes of the femoral head within the hip joint. Due to the developmental nature and the unknown etiology of the disease, LCPD is difficult to predict and prevent. No disease mapping strategies have been employed to date.

Objective: This study is using the Affymetrix canine single nucleotide polymorphism (SNP) chip to identify regions that are linked to LCPD in the West Highland White Terrier, Yorkshire Terrier, and Miniature Pinscher breeds.

Grant Objectives:

Objective 1: Sample collection and phenotype confirmation. Collect a total of 200 samples with a minimum of 50 per breed.

Objective 2: Probe SNP array for genome wide association

Publications:

Report to Grant Sponsor from Investigator:

This study aims to dissect the genetic component(s) of Legg-Calve-Perthes Disease (LCPD) in terrier breeds through genomic analyses. Previous studies have suggested LCPD is transmitted in an autosomal recessive pattern. Our current data suggest the LCPD is inherited in either a dominant or complex fashion. Only with more samples will we begin to understand the genetics controlling LCPD. One candidate gene identified in humans was investigated in canine LCPD, but was not associated with LCPD in WHWTs.

Interested owners willing to participate in the study are referred to submission instructions found at www.clemson.edu/cgr. Questions regarding this study should be directed to Dr. Alison Starr (astarr@clemson.edu).